Amendments to the Claims

Please cancel claim 23, amend claims 24-28, 32, 33, 35 and 42, all as shown below. All pending claims are reproduced herewith, including those that remain unchanged.

1. (Original) A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

(a) monitoring a current associated with the electro-kinetic system in order to adjust a first count and a second count;

(b) each time a monitored current value reaches a current threshold, incrementing the first count;

(c) each time the first count reaches a first count threshold, temporarily shutting down the electro-kinetic system for a predetermined period, incrementing the second count, and re-initializing the first count, wherein the electro-kinetic system restarts after the predetermined period; and

(d) when the second count reaches a second count threshold, shutting down the electro-kinetic system until a reset condition is satisfied.

2. (Original) The method of claim 1, wherein:

step (a) includes periodically sampling the current associated with the electro-kinetic system; and

step (b) includes comparing the samples produce at step (a) to the current threshold.

3. (Original) The method of claim 1, wherein:

step (a) includes periodically sampling the current associated with the electro-kinetic system and determining a running average of the samples; and

step (b) includes comparing the running averages produced at step (a) to the current threshold.

4. (Original) The method of claim 3, wherein step (a) includes producing the running averages by averaging a most recent sample with a plurality of immediately proceeding samples.

5. (Original) The method of claim 1, wherein the electro-kinetic system remains off, after the second count reaches the second count threshold, until the second electrode is removed and replaced, thereby satisfying the reset condition..

6. (Original) The method of claim 1, wherein the electro-kinetic system remains off, after the second count reaches the second count threshold, until a power control switch is turned off and back on, thereby satisfying the reset condition.

7. (Original) The method of claim 1, further comprising:

after the second count reaches the second count threshold, resetting the first and second counts and restarting the electro-kinetic system in response to detecting removal and replacement of the second electrode.

8. (Original) The method of claim 1, further comprising:

re-initializing the first and second counts when the sampled current does not exceed the current threshold for a further predetermined period.

9. (Original) The method of claim 1, further comprising:

re-initializing the first and second counts when the sampled current does not exceed the current threshold for about 60 seconds.

10. (Original) The method of claim 1, further comprising:

re-initializing the first and second counts each time a predetermined number of monitored current values in a row do not exceed the current threshold.

11. (Original) A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

(a) monitoring a current associated with the electro-kinetic system in order to adjust a first count and a second count;

(b) each time a monitored current value reaches a current threshold, incrementing the first count;

(c) each time the first count reaches a first count threshold, temporarily shutting down the electro-kinetic system for a predetermined period, incrementing the second count, and re-initializing the first count, wherein the electro-kinetic system restarts after the predetermined period; and

(d) when the second count reaches a second count threshold, indicating to a user that the second electrode should be cleaned.

12. (Original) The method of claim 11, wherein step (d) includes illuminating an indicator light.

13. (Original) The method of claim 11, wherein step (d) includes triggering an audible alarm.

14. (Original) The method of claim 12, wherein step (d) further comprises shutting down the electro-kinetic system when the second count reaches the second count threshold.

15. (Original) The method of claim 11, further comprising:

(e) when the second count reaches the second count threshold, shutting down the electro-kinetic system until removal and replacement of the second electrode is detected.

16. (Original) The method of claim 11, further comprising:

(e) when the second count reaches the second count threshold, shutting down the electro-kinetic system until replacement of the second electrode is detected.

17. (Original) A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method comprising:

(a) monitoring a voltage associated with the electro-kinetic system in order to adjust a first count and a second count;

(b) each time a monitored voltage value reaches a voltage threshold, incrementing the first count;

(c) each time the first count reaches a first count threshold, temporarily shutting down the electro-kinetic system for a predetermined period, incrementing the second count, and re-initializing the first count, wherein the electro-kinetic system restarts after the predetermined period; and

(d) when the second count reaches a second count threshold, shutting down the electro-kinetic system until a reset condition is satisfied.

18. (Original) The method of claim 17, wherein:

step (a) includes periodically sampling the voltage associated with the electro-kinetic system; and

step (b) includes comparing the samples produce at step (a) to the voltage threshold.

19. (Original) The method of claim 17, wherein:

step (a) includes periodically sampling the voltage associated with the electro-kinetic system and determining a running average of the samples; and

step (b) includes comparing the running averages produced at step (a) to the voltage threshold.

20. (Original) The method of claim 19, wherein step (a) includes producing the running averages by averaging a most recent sample with a plurality of immediately proceeding samples.

21. (Original) The method of claim 17 wherein the electro-kinetic system remains off, after the second count reaches the second count threshold, until the second electrode is removed and replaced, thereby satisfying the reset condition.

22. (Original) The method of claim 17, wherein the electro-kinetic system remains off, after the second count reaches the second count threshold, until a power control switch is turned off and back on, thereby satisfying the reset condition.

23. (Canceled)

24. (Currently Amended) ~~The method of claim 23, further comprising,~~ A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

temporarily shutting down the electro-kinetic system when an accumulated arcing time reaches a first threshold;

shutting down the electro-kinetic system when the accumulated arcing time reaches a second threshold; and

after shut down due to the accumulated arcing time reaching the second threshold, restarting the electro-kinetic system in response to detecting removal and replacement of the second electrode.

25. (Currently Amended) ~~The method of claim 23, further comprising,~~ A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

temporarily shutting down the electro-kinetic system when an accumulated arcing time reaches a first threshold;

shutting down the electro-kinetic system when the accumulated arcing time reaches a second threshold; and

after shut down due to the accumulated arcing time reaching the second threshold, restarting the electro-kinetic system in response to detecting replacement of the second electrode.

26. (Currently Amended) ~~The method of claim 24, further comprising,~~ A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

temporarily shutting down the electro-kinetic system when an accumulated arcing time reaches a first threshold;

shutting down the electro-kinetic system when the accumulated arcing time reaches a second threshold; and

after shut down due to the accumulated arcing time reaching the second threshold, restarting the electro-kinetic system in response to detecting reset by a user.

27. (Currently Amended) A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

(a) monitoring a current associated with the electro-kinetic system;

(b) each time a monitored current value reaches a current threshold, incrementing a first count, wherein the current threshold is set based on an airflow setting; and

(c) when the first count reaches a first count threshold, temporarily shutting down the electro-kinetic system.

28. (Currently Amended) ~~The method of claim 27, further comprising:~~ A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

(a) monitoring a current associated with the electro-kinetic system;

(b) each time a monitored current value reaches a current threshold, incrementing a first count; and

(c) when the first count reaches a first count threshold, temporarily shutting down the electro-kinetic system;

(d) when the first count reaches the first count threshold, incrementing a second count, and re-initializing the first count, such that the electro-kinetic system restarts after a predetermined period; and

(e) when the second count reaches a second count threshold, shutting down the electro-kinetic system and indicating to a user that the system is shut down.

29. (Original) A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

(a) monitoring a current associated with the electro-kinetic system in order to adjust a first count and a second count;

(b) each time a monitored current value reaches a current threshold, incrementing the first count;

(c) each time the first count reaches a first count threshold, temporarily lowering a potential difference between the first and second electrodes from a set level for a predetermined period, incrementing the second count, and re-initializing the first count, wherein the potential difference between the first and second electrodes is returned to the set level after the predetermined period; and

(d) when the second count reaches a second count threshold, indicating to a user that the second electrode should be cleaned.

30. (Original) A method for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, the method including:

(a) sampling a current associated with the electro-kinetic system once every about 10 microseconds and producing a running average of the current samples; and

(b) comparing the running average to a current threshold and incrementing a first count each time the running average reaches a current threshold;

(c) each time the first count reaches 30, temporarily shutting down the electro-kinetic system for about 80 seconds, incrementing a second count, and re-initializing the first count to equal 0, wherein the electro-kinetic system restarts after the about 80 seconds; and

(d) when the second count reaches 3, shutting down the electro-kinetic system until a reset condition is satisfied.

31. (Original) The method of claim 30, wherein the electro-kinetic system remains off, after the second count reaches 3, until the second electrode is removed and replaced, thereby satisfying the reset condition.

32. (Currently Amended) A system for monitoring and suppressing arcing between a first electrode and a second electrode of an electro-kinetic system, comprising:

means for monitoring an accumulated arcing time;

means for shutting down the electro-kinetic system when the accumulated arcing time reaches a first threshold; and

means for shutting down the electro-kinetic system when the accumulated arcing time reaches a second threshold;

wherein, following the accumulated arcing time reaching the second threshold, the electro-kinetic system is not restarted until ~~a reset condition is satisfied~~ the second electrode has been removed and replaced.

33. (Currently Amended) An air-transporter conditioner device, comprising:

a housing defining an inlet and an outlet;

an electro-kinetic system including a first electrode, a second electrode, and a high voltage generator disposed in the housing, to create an airflow moving from the inlet to the outlet; and

a micro-controller unit to control the electro-kinetic system;

wherein the micro-controller unit:

monitors an accumulated arcing time between the first electrode and the second electrode;

temporarily shuts down the electro-kinetic system when the accumulated arcing time reaches a first threshold; and

shuts down the electro-kinetic system when the accumulated arcing time reaches a second threshold, such that following the accumulated arcing time reaching the second threshold, the electro-kinetic system is not restarted until ~~a reset condition is satisfied~~ the micro-controller receives an indication that the second electrode has been replaced.

34. (Original) An air-transporter conditioner device, comprising:

a housing defining an inlet and an outlet;

an electro-kinetic system including a first electrode, a second electrode and a high voltage generator, disposed in the housing, to create an airflow moving from the inlet to the outlet; and

a micro-controller unit to control the electro-kinetic system;

wherein the micro-controller unit:

monitors a current associated with the electro-kinetic system in order to adjust a first count and a second count;

increments the first count, each time a monitored current value reaches a current threshold;

increments the second count, temporarily shuts down the electro-kinetic system for a predetermined period, and re-initializing the first count, each time the first count reaches a first count threshold; and

shuts down the electro-kinetic system, when the second count reaches a second count threshold, until a reset condition is satisfied.

35. (Currently Amended) The device of claim 34, wherein the high voltage ~~pulse~~ generator is coupled between the first electrode and the second electrode; and wherein the micro-controller unit drives the high voltage generator with a low voltage pulse signal.

36. (Original) The device of claim 35, wherein the micro-controller unit shuts down the electro-kinetic system by not providing the low voltage pulse signal to the high voltage generator.

37. (Original) The device of claim 34, wherein the micro-controller unit is adapted to detect whether the reset condition is satisfied.

38. (Original) The device of claim 37, wherein the reset condition comprises removal of the second electrode from the housing and return of the second electrode in the housing.

39. (Original) The device of claim 37, wherein the reset condition comprises return of the second electrode in the housing.

40. (Original) The device of claim 37, wherein the reset condition comprises the turning off and on of the device.

41. (Original) An air-transporter conditioner device, comprising:

a housing defining an inlet and an outlet;

an electro-kinetic system including a first electrode, a second electrode and a high voltage generator, disposed in the housing, to create an airflow moving from the inlet to the outlet; and

a micro-controller unit to control the electro-kinetic system;

wherein the micro-controller unit:

monitors a current associated with the electro-kinetic system in order to adjust a first count and a second count;

increments the first count, each time a monitored current value reaches a current threshold;

increments the second count, temporarily lowers a potential difference between the first and second electrodes for a predetermined period, and re-initializing the first count, each time the first count reaches a first count threshold; and

shuts down the electro-kinetic system, when the second count reaches a second count threshold.

42. (Currently Amended) An air-transporter conditioner device, comprising:

a housing defining an inlet and an outlet;

an electro-kinetic system including a first electrode, a second electrode and a high voltage generator, disposed in the housing, to create an airflow moving from the inlet to the outlet; and

a micro-controller unit to control the electro-kinetic system;

wherein the micro-controller unit:

monitors the electro-kinetic system in order to adjust a ~~first~~ count;

increments the ~~first~~ count, each time a monitored current or voltage ~~value~~ reaches a threshold;

resets the count, when the monitored current or voltage has not exceeded the threshold for a predetermined amount of time; and

shuts down the electro-kinetic system when the ~~first~~ count reaches a ~~first~~ count threshold.